

What is claimed is:

1. A rotational position detection device comprising:

a first light emitting part which is mounted on a first support body;

a first reflection face which is formed on a second support body which is arranged to face the first support body with a gap therebetween such that light from the first light emitting part is obliquely incident on the first reflection face;

a first light receiving part mounted on the first support body at a position away from the first light emitting part to receive light obliquely reflected on the first reflection face; and

a first disc-like rotary body which is arranged in the gap between the first and the second support bodies, the first disc-like rotary body having a first opening means which opens a first incident optical path leading from the first light emitting part to the first reflection face and a first reflection optical path leading from the first reflection face to the first light receiving part when the first disc-like rotary body assumes a first rotational position with respect to the first support body, wherein

when the first disc-like rotary body assumes the first rotational position, a first imaginary line which connects a first incident optical path part in which the first incident optical path passes through and a first reflection optical path

part in which the first reflection optical path passes through in the first opening means extends in the direction which intersects the radial direction of the first disc-like rotary body.

2. A rotational position detection device according to claim 1, wherein a radial directional line which connects an intermediate point of the first imaginary line and the center of the first disc-like rotary body is set orthogonal to the first imaginary line.

3. A rotational position detection device according to claim 1, wherein the first opening means is comprised a first elongated opening which continuously extends between the first incident optical path part and the first reflection optical path part.

4. A rotational position detection device according to claim 1, wherein the first opening means includes a first incident optical path forming small opening portion which allows passing of incident light from the first light emitting part to the first reflection face and a first reflection optical path forming small opening portion which is arranged spaced apart from the first incident optical path forming small opening portion and allows passing of reflection light from the first reflection face to the first light receiving part.

5. A rotational position detection device according to claim 1, wherein the first light emitting part and the first

light receiving part are mounted on a light emitting part mounting region and a light receiving part mounting region of one main surface which faces the first reflection face out of the first support body, and a light shielding part which blocks advancing of a stray light from the light emitting part to the light receiving part is formed such that the light shielding part projects from one mounting region than at least either one of the light emitting part and the light receiving part.

6. A rotational position detection device according to claim 1, wherein the rotational position detection device further includes a second disc-like rotary body which is arranged parallel to the first disc-like rotary body in the gap between the first and the second support bodies, the second disc-like rotary body including a second opening means which opens a first incident optical path leading from the first light emitting part to the first reflection face and the first reflection optical path leading from the first reflection face to the first light receiving part when the second disc-like rotary body assumes a second rotational position with respect to the first support body, and

a second imaginary line which connects a second incident optical path part in which the first incident optical path passes through and a second reflection optical path part in which the first reflection optical path passes through out of the second opening means extends in the direction which intersects the

radial direction of the second disc-like rotary body and is parallel to the first imaginary line when the first and the second disc-like rotary bodies respectively assume the first and the second rotational positions.

7. A rotational position detection device according to claim 6, wherein a radial directional line which connects an intermediate point of the second imaginary line and the center of the second disc-like rotary body is set orthogonal to the second imaginary line.

8. A rotational position detection device according to claim 6, wherein the second opening means is comprised a second elongated opening which continuously extends between the second incident optical path part and the second reflection optical path part.

9. A rotational position detection device according to claim 6, wherein the second opening means includes a second incident optical path forming small opening portion which allows passing of incident light from the first light emitting part to the first reflection face and a second reflection optical path forming small opening portion which is arranged spaced apart from the second incident optical path forming small opening portion and allows passing of reflection light from the first reflection face to the first light receiving part.

10. A rotational position detection device according to claim 6, wherein a rotational center axis of the second

disc-like rotary body extends in parallel to a rotational center axis of the first disc-like rotary body with a distance defined therebetween.

11. A rotational position detection device according to claim 10, wherein the first and the second imaginary lines extend in the orthogonal direction with respect to the direction which connects the rotational center axes of the first and the second disc-like rotary bodies.

12. A rotational position detection device according to claim 6, wherein the second disc-like rotary body is arranged concentrically with the first disc-like rotary body.

13. A rotational position detection device according to claim 12, wherein the rotational position detection device further includes a third disc-like rotary body which is rotated about a rotational center axis which extends parallel to the rotational center axes of the first and the second disc-like rotary bodies in a spaced apart manner from the rotational center axes of the first and the second disc-like rotary bodies, the third disc-like rotary body including a third opening means which opens a first incident optical path leading from the first light emitting part to the first reflection face and the first reflection optical path leading from the first reflection face to the first light receiving part when the third disc-like rotary body assumes a third rotational position with respect to the first support body, and

a third imaginary line which connects a third incident optical path part in which the first incident optical path passes through and a third reflection optical path part in which the first reflection optical path passes through out of the third opening means extends in the direction which intersects the radial direction of the third disc-like rotary body and is parallel to the first and second imaginary lines when the first, the second and the third disc-like rotary bodies respectively assume the first, the second and the third rotational positions.

14. A rotational position detection device according to claim 1, wherein the rotational position detection device further includes:

a second light emitting part which is mounted on the first support body;

a second reflection face which is formed on a third support body which faces the first support body with a gap therebetween such that light from the second light emitting part is obliquely incident on the second reflection face;

a second light receiving part which is mounted at a position spaced apart from the second light emitting part in the first support body to receive light reflected obliquely on the second reflection face; and

a fourth disc-like rotary body which is arranged in the gap between the first and third support bodies, the fourth disc-like rotary body having a fourth opening means which opens

the second incident optical path leading from the second light emitting part to the second reflection face and a second reflection optical path leading from the second reflection face to the second light receiving part when the fourth disc-like rotary body assumes a fourth rotational position with respect to the first support body, wherein a fourth imaginary line which connects a fourth incident light optical path part in which the second incident optical path passes through and a fourth reflection optical path part in which the second reflection optical path passes through out of the fourth opening means extends in the direction which intersects the radial direction of the fourth disc-like rotary body when the fourth disc-like rotary body assumes the fourth rotational position.

15. A rotational position detection device according to claim 14, wherein a radial directional line which connects an intermediate point of the fourth imaginary line and the center of the fourth disc-like rotary body is set orthogonal to the fourth imaginary line.

16. A rotational position detection device according to claim 14, wherein the fourth opening means is comprised a fourth elongated opening which continuously extends between the fourth incident optical path part and the fourth reflection optical path part.

17. A rotational position detection device according to claim 14, wherein the fourth opening means includes a fourth

incident optical path forming small opening portion which allows passing of incident light from the second light emitting part to the second reflection face and a fourth reflection optical path forming small opening portion which is arranged spaced apart from the fourth incident optical path forming small opening portion and allows passing of reflection light from the second reflection face to the second light receiving part.

18. A rotational position detection device according to claim 1, wherein the second support body is placed in a stationary state with respect to the first support body.

19. A rotational position detection device according to claim 1, wherein the second support body is comprised a fifth disc-like rotary body which is concentric with the first disc-like rotary body.

20. A rotational position detection device according to claim 19, wherein a main surface of the fifth disc-like rotary body at a first-reflection-face-side includes a recessed portion in a small region having the reflection face and the reflection face is formed in a bottom face of the recessed portion.

21. A rotational position detection device according to claim 1, the disc-like rotary body is formed of a disc-like gear part.

22. A hand position detection device according to claim 21, wherein the first disc-like rotary body and a disc-like rotary body which is concentric with the first disc-like rotary body



are provided with time display hands at one ends of rotary axis of the rotary bodies.

23. A watch provided with the hand position detection device according to claim 22.